# Appendix A: Multiple Benefits

## LAND USE AND HOUSING

| Resource Area | Potential for Direct/Indirect Benefits |
|---|---|
| Open Space & Habitat | Emphasizing infill development and focusing growth around urban centers and transportation nodes will discourage sprawling "leapfrog" development, slow the rate of land consumption as the region grows and help protect important open space on our urban periphery. Balanced land use patterns use resources more efficiently and reduce parkland and habitat loss. |
| Water | Greater emphases on multi-family and non-traditional housing and green building practices help reduce per-capita water consumption, particularly for residential irrigation use. |
| Energy | Balanced land use growth patterns will reduce VMT and the fuel demands for vehicle travel. Mixed land uses near transportation services can save consumers up to 512 gallons of gasoline per year. Households in transit-oriented developments drive 45 percent less than residents in auto-dependent neighborhoods.<br>A greater emphasis on multi-family and non-traditional housing types and green building will help reduce buildings' energy consumption in the future, particularly for heating and cooling. |
| Air Quality | Land use decisions that reduce the number or length of vehicle trips will directly improve air quality by reducing regional VMT and associated vehicle start, running, and soak emissions. Green building will also contribute to improved air quality by reducing the emissions associated with construction and manufacturing of building materials. |
| Solid Waste | Greater emphases on infill development and green building practices will help reduce construction-related waste. |
| Transportation | Land use decisions may be the single most important factor in determining the performance of the transportation system and in evaluating the need for future transportation investments. SCAG projects that a robust application of its Compass Blueprint program can reduce about 8.6 million daily VMT in the region. |
| Security & Emergency Preparedness | Balanced growth that minimizes greenfield development at our urban fringes can reduce exposure to wildfires and other natural disasters that can tax our public safety services. |
| Economy | Providing an adequate supply of housing that is affordable and desirable will support a strong, diversified workforce and economy. The transportation benefits accruing from a more efficient land use pattern will help enable a vital economy, as people and goods are able to move more freely throughout the region. A concerted effort to alleviate the current housing shortage will stimulate the economically important building industry. |
| Public Health | Studies have shown that there can be real public health benefits from growth consistent with the Compass Blueprint. Neighborhoods that generate fewer and shorter vehicle trips and greater use of transit and non-motorized modes mean better air quality and fewer dangerous pollutants. "People-scaled" urban design and accessible open space will encourage more walking, cycling and other physical activity for both transportation and recreation.<br>Meaningful land use and housing policies, specifically efforts carried out through Compass Blueprint, will focus new growth in existing urban centers and other already-developed areas. By reducing vehicle miles traveled and increasing mass transit ridership, local governments can reduce air pollution and encourage healthy, active lifestyles.<br>Encouraging pedestrian corridors and bike trails that connect residents to work sites, shops, and recreational opportunities, communities can reduce fuel consumption, improve air quality, and promote an active lifestyle. |
| Environmental Justice | Effective land use and housing policies will focus growth in existing urban centers and other developed areas. By cleaning up and redeveloping brownfields and other underutilized properties and providing urban parks, cities can revitalize the urban cores where most people live and where residents have too often been subjected to environmental hazards. The Compass approach also relies on public participation and collaboration to ensure that land use decisions meet the needs of local communities. |
| Climate Change | Land use practices and building techniques have a profound impact on reducing greenhouse gas emissions. For example, mixed land uses (e.g., residential developments near work places, restaurants, and shopping centers) with access to transportation can save residents up to 512 gallons of gasoline per year and reduce over 4 metric tons of $CO_2$ per year. |

## OPEN SPACE AND HABITAT

| Resource Area | Potential for Direct/Indirect Benefits |
|---|---|
| Land Use & Housing | The preservation of open spaces for natural lands and community parks provides aesthetic and recreational benefits to growing communities and can increase property values. Open spaces also provide community benefits by providing a place for interaction and connection in dense urban areas. |
| Water | Open space and parkland can enhance groundwater water resources by preserving or expanding the area available for natural groundwater recharge. It can also improve surface water quality by filtering, retaining, or detaining stormwater runoff. Open space also provides opportunities to reuse treated runoff or recycled water for irrigation, thereby reducing the demand for potable water. |
| Energy | Open spaces can address climate change and mitigate the need to cool a warmer region. This will in turn reduce the need to expand the power infrastructure needed to produce electricity and other sources of energy. |
| Air Quality | The United Nations estimates that a tree uses photosynthesis to reduce about 2 tons of CO2 in its lifetime. As such, maintaining and planting more trees can reduce greenhouse gas emissions.<br>Open spaces and particularly trees can provide much needed shade in urban areas, relieving the "heat island effect" that can exacerbate conditions for creating smog.<br>Agricultural soils help sequester about 0.8% of carbon released by combustion of fossil fuels. Methods such as no-till farming, residue mulching, and cover cropping used in organic farming can help sequester carbon emissions. |
| Solid Waste | Greater emphases on infill development and green building practices will help reduce construction-related waste. |
| Transportation | As mandated by federal SAFETEA-LU legislation, open space policies can help to improve the location, design, and other features of new or expanded transportation projects. |
| Security & Emergency Preparedness | See the Security & Emergency Preparedness section for discussion of benefits for Open Space. |
| Economy | Accessibility to parks and other open space provides major public health benefits that enhance economic productivity and minimize public health costs. Areas without parks have increased obesity, resulting in a loss of productivity (work days lost) and are a major drain on the health care system. The retention of agricultural lands helps provide regional economic diversity, as Riverside, Imperial, and Ventura counties account for over $1 billion in gross value of products sold. |
| Public Health | If current trends in obesity and inactivity continue, today's youth will be the first generation in this nation's history to face a shorter life expectancy than their parents. Strong policies to provide places to play in schools, parks, and green spaces will help children become physically fit and perform better academically. Public transportation to these areas is especially vital in this region because many Southern California cities are park-poor. As a result, residents cannot simply walk to neighborhood parks like people in other cities because they often do not exist. |
| Environmental Justice | Southern California may be regarded as the car capital of the world, but for the working poor and other people with limited or no access to a car who depend on public transit, it can be almost impossible to get to work, school, the market, parks, forests, beaches, doctors, or many other basic needs of life. Access to public transportation is also important to increase access to our natural lands and public spaces. A very good example is access to Southern California's four national forests. According to a study by USC Department of Geography, there is virtually no good way to reach the four forests of Southern California by public transportation. |
| Climate Change | See discussion of open space policies on air quality. |

## WATER

| Resource Area | Potential for Direct/Indirect Benefits |
|---|---|
| Land Use & Housing | Water policies that focus development in areas with existing water infrastructure encourage infill development. In addition, minimizing impervious surfaces reduces greenfield development, growth-inducing road projects, and the siting of large-lot commercial development in outlying areas. Discouraging both expensive new water infrastructure and development in water-stressed areas of the region encourages concentrated growth in Compass Blueprint strategy areas. |
| Open Space & Habitat | Protecting lands for water resources also conserves and restores important habitat and open space. Groundwater recharge areas, both natural and constructed, can double as habitat and park lands. Green infrastructure, utilized for stormwater management during rain events, can be used as local green space during the majority of the year when there is little precipitation. |
| Energy | Transporting water requires enormous amounts of energy. It takes 8,900 kilowatt-hours to bring one million gallons (kWh/MG) of water into Southern California. Increasing local water supplies would greatly reduce the amount of energy used in the region's water supply system (Northern California uses 150 kWh/MG to transport local water).<br>Water conservation reduces demand, which in turn enables local and recycled water sources to make up more of the region's use. This also reduces the amount of energy needed for pumping and conveying water. |
| Air Quality | Reducing the amount of water that is imported into the region also reduces the energy use associated with moving that water. Reductions in energy use can reduce fossil fuel-based energy sources – improving air quality. Air quality is also improved through the creation and enhancement of urban green spaces, especially the urban forest, which are components of a green infrastructure solution to stormwater management. |
| Solid Waste | See the Solid Waste section for discussion of benefits for Water. |
| Transportation | Discouraging the creation of new impervious surfaces would also reduce new roads and parking, especially surface parking lots. This encourages walkable neighborhoods and transit use over auto-dependent development and road-building. |
| Security & Emergency Preparedness | A robust green infrastructure system improves protection from flooding and from corresponding safety issues. More local sources of water would decrease the exposure of our Statewide transport system to natural of man-made disasters. |
| Economy | Conserving and increasing local water supply would reduce reliance on imported water, which is brought into the region at great expense. Savings could be spent on local water management issues, and improved quality of local supplies. When market-based compliance programs are implemented (as set forth in Executive Order S-20-06), reductions in water imports will be even more economically significant. |
| Public Health | Protecting the quality of surface and underground water supplies promotes public health objectives. Reducing pollution levels in local streams and rivers and reducing beach closures will reduce adverse heath impacts from exposure. Protecting groundwater sources from saltwater intrusion and man-made sources of pollution will help maintain aquifer water quality. A robust green infrastructure system also provides improved protection from flooding. |
| Environmental Justice | When communities manage local water quality through increased use of green space, they help bring recreational opportunities into park-poor neighborhoods that often have minimal park facilities. |
| Climate Change | Policies that encourage water conservation will help alleviate the forecasted supply impacts of climate change. For example, many climate scenarios predict a shorter rainy season in California; lack of winter snow and a resulting decrease in the Sierra Nevada snow pack, which acts as a natural reservoir. Furthermore, rising sea levels due to thermal expansion of warmer ocean waters and melting glaciers would degrade estuaries, wetlands, and groundwater aquifers.<br>The carbon footprint of pumping and conveying water is significant, and can be reduced through decreasing demand and increasing local supply. Low Impact Development and green building/green infrastructure development reduce the amount of greenhouse gases emitted from energy used in water treatment, household use, and flood protection. Focusing growth in areas of existing water infrastructure and availability, and protection of open lands for infiltration, both encourage low-carbon development. |

## ENERGY

| Resource Area | Potential for Direct/Indirect Benefits |
|---|---|
| Land Use & Housing | Decreasing the region's reliance on fossil fuels will reduce the need to build or expand refinery and delivery infrastructure, thereby reducing siting pressures and potential land use conflict with residential or other incompatible land uses. Reducing the need to expand petroleum refinery infrastructure will also address land use concerns for minority and low-income communities, which historically have been adversely affected disproportionately. In addition, other fossil fuels like LNG can pose land use conflicts due to air pollution and security concerns. One example is the Cabrillo Port LNG terminal which raised concerns about compatibility with nearby homes and businesses. |
| Open Space & Habitat | Energy policies encouraging mixed-use development with pedestrian corridors and bike trails that connect residents to work sites, shops, and recreational opportunities, communities can reduce fuel consumption, improve air quality, and promote an active lifestyle. Furthermore, land use patterns use resources more efficiently and reduce parkland and habitat loss. |
| Water | A strong connection exists between water provision and energy consumption. As water demand grows in the state, the water related energy demand also grows. Since population growth drives demand for resources, water and energy demand are growing at about the same rate and, importantly, in many of the same geographic areas. In California, water related energy use, which includes the conveyance, storage, treatment, distribution, wastewater collection, treatment, and discharge sectors of the water use cycle, consumes about 19% of the state's electricity, 30% of its natural gas, and 88 billion gallons of diesel fuel every year; and this demand is growing. The environmental effects of electricity production should be considered in water supply decisions. |
| Air Quality | Energy policies that reduce our dependence on petroleum will benefit air quality. The California Air Resources Board has estimated that electric vehicles produce only 6 percent of the air pollution generated by the cleanest internal combustion cars. However, in the South Coast Air Basin, limitations on the supply of emission reduction credits constrain the ability to either license new power plants or re-power existing ones. As a result, the 2007 Integrated Energy Policy Report recommends that all stakeholders continue to work together to better understand the relationship between air quality and electricity demand. |
| Solid Waste | Energy policies that promote renewable energy generation have the ability to increase the use of waste materials for energy production. For example, California has large, untapped biomass resources, including residues from forestry, urban, and agricultural wastes that can be used to create electricity, transportation fuels, and biogas. Using biomass to produce energy can reduce the waste stream in California's forests, landfills, and farmlands, and improve forest health while reducing the risk of catastrophic wildfires. |
| Transportation | As our region becomes more energy-efficient, the transportation impacts of accommodating a growing energy infrastructure are reduced. The rate of growth of on-road transport of fossil fuels with heavy-, medium-, and light-duty trucks will be reduced. Households in energy-efficient, transit-oriented developments can drive 45 percent less than residents in auto-dependent neighborhoods. |
| Security & Emergency Preparedness | Energy policies that reduce petroleum consumption could reduce our vulnerability to external disruptions and geopolitical instability. For example, Iraq and Saudi Arabia are or have been the two largest sources of California's foreign imports. Recent disruptions in foreign petroleum and gasoline supplies have harmed the state's economy and led to peaks in gasoline prices. Further, reducing the need for refineries or natural gas terminals could reduce potential safety risks for adjacent communities. |
| Economy | A fuel shortage will take a toll on California's economy as consumers are spending more of their household income on gasoline than ever before, particularly with development patterns that create long commutes without access to public transportation. High fuel prices also reduce profit margins for the manufacturing and industrial sectors, which pass the higher cost of their goods and services to consumers. Since September of 2004, the monthly average price of gasoline has increased by more than 35 cents per gallon, costing consumers an additional $6.1 billion for gasoline.<br><br>Energy policies that increase automobile fuel economy could help the economy. A study by the Union of Concerned Scientists found that a 35 mpg fleet would create as many as 170,800 jobs in 2020 including 22,300 in the auto industry and save consumers nearly $25 billion on gasoline with average prices at $2.55 per gallon. The increase in fuel efficiency would also decrease the demand for oil in the U.S. by close to 2.5 million barrels of oil per day. |
| Public Health | The landmark MATES-II study by the South Coast AQMD finds that diesel-based particulate emissions from trucks, ships, locomotives, and other sources account for over 80 percent of the toxic air pollution risk in Southern California. |
| Environmental Justice | Our economy relies on production of petroleum-based products that disproportionately impact low-income and disadvantaged communities. For example, refineries that produce diesel and gasoline fuel from crude oil are often located in neighborhoods that are asked to bear the brunt of refinery-based emissions and occasional emergency releases of hydrocarbon gases. Further, power plants that generate electricity from natural gas or other petroleum products are often located in industrial areas that are still home to poor, minority communities. As the demand to provide energy from these facilities increases, the potential impacts on disadvantaged neighborhoods increase accordingly.<br><br>Shifting from petroleum-based energy to renewable sources can reduce the need to build or expand energy facilities in poor or rural neighborhoods. Clean energy sources can reduce human exposure to toxic air emissions. |
| Climate Change | Reducing energy consumption will substantially reduce greenhouse gas emissions. Transportation is the largest source of greenhouse gas emissions in California, representing 41% of emissions and California is the second largest emitter of GHG emissions in the United States.<br><br>Improving energy efficiency and using renewable energy sources can slow the rate at which we need to build power plants, which are major point sources of greenhouse gases. |

## AIR QUALITY

| Resource Area | Potential for Direct/Indirect Benefits |
|---|---|
| Land Use & Housing | Reducing emissions from local sources of air pollution reduces potential incompatibility of land uses. For example, reducing particulate and toxic air contaminants from manufacturing facilities can reduce conflict with residential uses by reducing ambient pollutant concentrations. This can give jurisdictions more flexibility to site land uses in a region that will become more densely populated.<br>In addition, reversing climate change trends will reduce the need to relocate coastal- and desert-based development and populations that may exposed to higher sea level and extreme temperatures, respectively. |
| Open Space & Habitat | Achieving federal ozone standards will reduce damage to vegetation and crops, as ozone inhibits crop productivity and can reduce crop yield. For example, implementation of the 2007 AQMP is projected to increase the yield of 16 crops by $17.5 million in 2012 and $23.2 million annually in 2023, respectively. Productivity of melon, bean, and grape crops would improve the most.<br>$NO_x$ is one of the key air pollutants that cause acid rain or deposition and increase the acidity of water and soils. Water acidity can impair the ability of aquatic life to grow, reproduce, and survive, while soil acidity can impair the ability of some types of trees to grow and resist disease. As such, reducing $NO_x$ will reduce adverse effects on aquatic and terrestrial ecosystems.<br>Reductions in nitrogen reduce accelerated growth of algae in water supplies that depletes the water of oxygen and severely impacts aquatic habitat. |
| Water | Reducing global warming will minimize the potential associated decrease in freshwater supplies from the Sierra Nevada that make up the majority of Southern California's water supply.<br>Locally, reducing airborne pollutants will reduce wet and dry deposition that directly pollutes surface water bodies. Studies also show that a substantial amount of nitrogen load to surface water bodies comes from indirect loads caused by surface water runoff. In either case, nitrogen can accumulate and filter down through the ground and pollute drinking water sources with high nitrate levels. |
| Energy | Reducing climate change impacts will mitigate the need to cool a warmer region, which will reduce the need to expand the infrastructure needed to produce electricity and other sources of energy. |
| Solid Waste | See the Solid Waste section for discussion of benefits for Air Quality. |
| Transportation | See the Transportation section for discussion of benefits for Air Quality. |
| Security & Emergency Preparedness | See the Security & Emergency Preparedness section for discussion of benefits for Air Quality. |
| Economy | Attaining clean air standards can provide substantial economic benefits. In the South Coast Air Basin, attaining federal ozone standards could add $14.6 billion dollars to the economy on average per year by reducing morbidity, mortality, increasing crop yields and visibility, reducing materials expenditures, and congestion relief. In 2014, an estimated $113 million of savings on vehicle operation and maintenance is expected. Implementing the South Coast AQMP is expected to generate more than 61,400 jobs per year. |
| Public Health | Reducing criteria pollutant emissions can have profound benefits for public health. The 2007 South Coast AQMP estimates that achieving clean air will save $9.8 billion annually due to decreased morbidity and mortality. Reducing ozone levels can reduce permanent scarring of lung tissue and reduce respiratory irritation and discomfort. Children, the elderly, and persons who exercise heavily would enjoy better health. Reducing $PM_{2.5}$ could significantly reduce the estimated 5,400 premature deaths annually in the region. |
| Environmental Justice | Reducing localized emissions and exposure of toxic air contaminants, particulates, and other pollutants in minority and low-income communities can address the disproportionate adverse effects of air pollution on these populations. To that end, air quality policies in the RCP are intended to ensure that minority population and/or low-income populations do not bear impacts that are appreciably more severe or greater in magnitude that the adverse effects that will be suffered by non-minority population and/or non-low-income populations. |
| Climate Change | Warmer weather will increase the number of days conducive to ozone formation by 25 to 85 percent. In addition, warmer temperatures could increase fire risk, which would increase potential for particulate matter emission episodes. |

## SOLID WASTE

| Resource Area | Potential for Direct/Indirect Benefits |
|---|---|
| Land Use & Housing | As the need for new landfill capacity diminishes, communities will not run into problems of landfill siting pressures. The siting or new or expanded waste management facilities are often incompatible with existing or planned land uses in a community. |
| Open Space & Habitat | Materials extraction activities are intensely disruptive to wildlife and their natural habitats. Changing and reducing the waste stream will significantly reduce open space impacts by reducing the need for raw materials extraction and reducing the pressure to open new landfills. |
| Water | If the waste stream is reduced, the amount of litter, especially plastics that pollute the waterways, will be reduced. This will also reduce the potential for groundwater contamination from improperly disposed items. |
| Energy | Recycling and waste prevention conserve energy. Making goods from recycled materials typically requires less energy than making goods from virgin materials. Waste prevention avoids energy used in the extraction, transport, and processing of raw materials to create new products. As an interim measure, waste-to-energy facilities can help offset fossil fuel use and avoid disposal to landfills. |
| Air Quality | Emissions from transport, manufacturing, production, and disposal and other waste management practices will be avoided through increased recycling, reuse, and waste prevention. Further, methane gas associated with new or expanded landfills can be reduced, with benefits for climate change and regional ozone planning efforts. |
| Transportation | As packaging waste is reduced, the need for vehicles to transport waste to disposal or recycling facilities should also be reduced. Producer take-back programs have the potential to decrease municipal costs of waste collection. Creating resource recovery parks will also significantly reduce transportation needs. |
| Security & Emergency Preparedness | See the Security & Emergency Preparedness section for discussion of benefits for Solid Waste. |
| Economy | Recycling and reuse industries have been shown to create more jobs than waste disposal facilities. |
| Public Health | |
| Environmental Justice | Landfills and other solid waste management facilities tend to be built in areas that see them as a boost to their local economy. These areas tend to be in poor or minority neighborhoods. Reducing the need for new or expanded facilities could reduce their disproportionate impact on disadvantaged communities. |
| Climate Change | Reducing the amount of waste deposited into landfills reduces the need to build and expand landfills, which account for 1/3 of California's methane emissions. Methane is a very potent greenhouse gas that has 21 times more global warming potential than carbon dioxide. |

## TRANSPORTATION

| Resource Area | Potential for Direct/Indirect Benefits |
|---|---|
| Land Use & Housing | Focusing transportation investments to serve critical centers for housing and jobs helps guide land use planning throughout the region. In doing so, transportation investments can increase property values and demand for subsequent development, such as transit-oriented development. |
| Open Space & Habitat | Location choices for new or expanded transportation facilities can play a large role in the ability to maintain or limit impacts on existing natural lands. Proper design of roadways can minimize the likelihood of road kill. |
| Water | Promoting transportation projects that reduce urban sprawl can reduce surface water runoff contamination and maximize recharge of underground aquifers. Improved highway and roadway design can help mitigate transportation-related water quality problems. Designing more porous hardscape into transportation projects can reduce surface water runoff and improve water quality and supply. |
| Energy | The transition of the vehicle fleet to non-petroleum-based energy sources will have profound changes in overall energy demand. The impact of potential shifts to electric-powered sources of transportation on power plants must be addressed. |
| Air Quality | On-road mobile sources make up 40% and 57% of our region's smog-forming ROG and NOx emissions, and 77% of carbon monoxide emissions. Transportation strategies can reduce vehicle trips, VMT, vehicle idling, shift travel times to off-peak hours, improve traffic speeds, or alter vehicle fleet characteristics. Transition of passenger and freight vehicle fleets to cleaner fuels is an important strategy in the region's efforts to achieve clean air standards and reduce localized hotspots of toxic air pollutants. |
| Solid Waste | Choice of infrastructure materials for transportation can play a large role in the long-term material demands needed for maintaining transportation infrastructure. Using rubberized asphalt for roadways reduces a significant amount of used tires heading to landfills. |
| Security & Emergency Preparedness | The ability to provide transportation redundancy improves the region's ability to respond to natural or man-made emergencies. Proper design of transportation facilities can also minimize future risk. |
| Economy | Improved mobility has a profound impact on the economy as the last time and additional fuel costs are distributed throughout the economy. This is particularly the case for movement of goods. |
| Public Health | Reducing and eliminating passenger and freight-related vehicle travel and congestion will reduce adverse health impacts from transportation-related air pollution. For example, living near heavy traffic nearly triples the chance of emergency room visits or hospitalizations for asthma suffers. |
| Environmental Justice | Developing an effective long-term transportation system must avoid, minimize, or mitigate disproportionately adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations. It must also ensure full and fair participation by all affected communities in the transportation decision-making process. |
| Climate Change | Transportation accounts for 41% of the state's greenhouse gas emissions. Policies that encourage and expand public transit will reduce passenger vehicle use and subsequently greenhouse gas emissions. |

## SECURITY AND EMERGENCY PREPAREDNESS

| Resource Area | Potential for Direct/Indirect Benefits |
|---|---|
| Land Use & Housing | Minimizing impacts related to emergencies should influence land use decisions. For example, minimizing tsunami or flood-related impacts could result in rezoning low-lying land, bringing potentially high value land off of the housing market. |
| Open Space & Habitat | Weighting wildfire risk would likely reduce the expansion of residential development in certain high wildfire risk areas. This can have additional benefits of increasing open space that may have a high habitat value. |
| Water | Drinking water supply is a sensitive target for both natural and human-caused emergencies. Investments in security and emergency preparedness to minimize risks related to drinking water will necessarily benefit our ability to ensure an adequate, safe water supply. |
| Energy | Minimizing our reliance on petroleum sources of energy insulates us from acute oil shortages due to terrorist or natural events (e.g., hurricanes impacting refineries). |
| Air Quality | Reducing our exposure to emergency scenarios can substantially protect short- and long-term air quality as Southern California's existing air quality challenges could be exasperated by terrorist attacks or other disasters. For example, a fire at one of the region's oil refineries would cause a significant acute increase in emissions of particulates and toxic air contaminants. |
| Solid Waste | Security and emergency preparedness is directly linked in how the region addresses hazardous waste. Developing better, safer transport or storage measures for hazardous waste will reduce risk or development emergency response plans will necessarily impact hazardous solid waste management. |
| Transportation | Increasing funding for transportation system preservation and maintenance reduces the likelihood of facility failure (e.g., a bridge collapse) that can cause short-term disruptions to circulation. However, it could also reduce funding transportation system expansion. |
| Economy | Taking risk adverse positions on investments may result in overinvestment in security-related improvements to the detriment of other public needs. The fear of another terrorist attack has diverted significant amount of public resources away from other investments. |
| Public Health | Preventing man-made events can reduce impacts to public health in a number of ways. For example, during severe wildfires, children who do not have asthma experience asthma-like symptoms, including noise, eye, and throat irritations. |
| Environmental Justice | Developing effective plans for ensuring public safety and emergency preparedness system must avoid, minimize, or mitigate disproportionately adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations. It must also ensure full and fair participation by all affected communities in the decision-making process. |
| Climate Change | N/A. |

## ECONOMY

| Resource Area | Potential for Direct/Indirect Benefits |
|---|---|
| Land Use & Housing | A strong and diverse economy provides for jobs and affordable housing necessary for our growing, changing population. |
| Open Space & Habitat | Economic policies that support the agricultural industry would benefit the top producing counties of Riverside, Imperial and Ventura and preserve open lands. |
| Water | Economic investments could be directed to regional and local projects that address the goals of a watershed or larger-scale planning and management area. This performance-based incentive policy could restore watersheds, improve water quality and enhance water conservation. |
| Energy | If energy and climate change policies are designed to create direct incentives for California companies that invest in new technologies, the Gross State Product (GSP) could increase by up to $74 billion annually and create 89,000 new jobs by 2020. |
| Air Quality | The unintended consequences of a vibrant economy could produce increased air pollution, primarily along major corridors. However, a comprehensive economic program would recognize potential environmental and social externalities and help distribute the costs and benefits in a way that reduces the negative air quality impacts of more economic activity and an expanded surface transportation system. |
| Solid Waste | Strong economic policies could help promote the reuse and recycling of materials through incentive programs, thereby reducing the amount of waste disposed of at landfills. |
| Transportation | The economy and the region's transportation system are mutually dependent upon one another. A strong economy generally increases the need for movement of passengers and freight, which challenges the region to provide adequate capacity to provide a safe and efficient transportation system. Improving ground access in and around major goods movement facilities, and enhancing major highways and railways are critical to maintaining the health of Southern California's economy. |
| Security & Emergency Preparedness | A stronger economy can help fund the improvements to our security and preparedness plans that help secure the region. The 2008 RTP commits $10 billion for safety related projects and services to examine safety on a system basis so that the region can use all the tools available to decrease traffic injuries and fatalities. |
| Public Health | A robust, diversified economy that benefits all communities can improve public health in a number of ways. A strong economy increases average household income for health care costs. It also increases community investments in infrastructure and programs that directly or indirectly promote public health improvements, such as community parks and after-school programs.<br>A vibrant economy that touches all can proactively promote preventative care that avoids adverse impacts on public health in the first place. |
| Environmental Justice | Developing an effective long-term economic strategy must avoid, minimize, or mitigate disproportionately adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations. It must also ensure full and fair participation by all affected communities in the transportation decision-making process.<br>Effective economic policies should address environmental justice by investing in cleaner technologies that reduce exposure to harmful pollutants as well as creating sustainable employment opportunities. |
| Climate Change | Future economic growth must be done in ways that don't increase the region's contribution to global climate change. International accords such as the Kyoto Protocol demonstrate the win-win potential to pursue economic growth while reducing greenhouse gases. |